# Antibiotics in animals: More research urgently needed

February 21 2020

Credit: CC0 Public Domain

A special issue of *Animal Health Research Reviews* turns the spotlight on

the science underlying this growing crisis—looking at the evidence base for using antibiotics to prevent illness in beef and dairy cattle, swine, and broiler poultry.

The scientists who introduce the collection—from the University of Guelph in Canada and the Iowa State University—conclude that veterinarians and food-animal producers know far too little about prevention or control measures, including antibiotic efficacy and antibiotic alternatives that could help to support antibiotic stewardship among animals.

The collection of 14 articles in the special issue—written by experts in the field from the US, Canada and beyond—examine publicly available evidence related to control of diseases in livestock and poultry. The articles, which are available via open source, focus on management practices that are designed to keep animals healthy and therefore reduce the need to use antibiotics—as well as looking at the administration of antimicrobials to prevent or control disease.

Despite finding evidence that some of the interventions were effective, across the body of research scientists found inconsistency in outcomes among trials, and highlighted serious concerns related to the completeness of reporting and trial design and execution that have been hidden in veterinary medicine for years.

For some interventions, scientists found that the body of evidence of efficacy was compelling. For example, a study of existing clinical trials on the efficacy of teat sealants for dairy cows found that the products studied were likely to be effective for reducing mastitis. Similarly, several antibiotics were shown to be effective at controlling respiratory diseases among cattle.

However, other evidence was less compelling. For bovine respiratory

disease in beef cattle, for example, scientists found no evidence that the current use of vaccines was effective. Similarly, for antibiotics and vaccines used to prevent bacterial respiratory disease in swine, the body of evidence was insufficient to determine whether or not these interventions were effective. For litter management in poultry and preventive antibiotics for the treatment of E coli, the body of evidence was also lacking.

The reviews conducted as part of the special issue of *Animal Health Research Reviews* highlighted that more and better research on these issues is urgently needed to help guide decision-making on the best use of antibiotics in future.

"As the threat of antimicrobial resistance grows, stewardship of these vital drugs is increasingly important in both human and animal health," the editors conclude. "Important facets of antimicrobial stewardship include using antibiotics judiciously as well as taking measures to minimize the need to use antimicrobials at all."

**More information:** Jan M. Sargeant et al, Editorial: Systematic reviews reveal a need for more, better data to inform antimicrobial stewardship practices in animal agriculture, *Animal Health Research Reviews* (2020). DOI: 10.1017/S1466252319000240

Provided by Cambridge University Press